

NET NEUTRALITY—HOW RELEVANT IS IT TO AUSTRALIA AND NEW ZEALAND?

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Abstract

This paper defines net neutrality as a restriction on price differentiation or price discrimination by firms involved in the distribution and transport of online content and applications. Many argue that net neutrality is a uniquely American problem brought about by an abandonment of access regulation and a lack of competition in the retail provision of broadband Internet access. This paper reviews the issues at the core of the net neutrality debate and assesses their relevance to both Australia and New Zealand. It concludes that the combination of competition in the retail provision of broadband Internet access, widespread adoption of volumetric pricing by ISPs and the existence of a well established regulatory framework for dealing with discriminatory behaviour negates the need for specific net neutrality regulation in either country.

1 Introduction

Net neutrality is a heated and contested policy principle in the United States. In stark contrast, net neutrality has received little attention in Australia or New Zealand by either industry or policy makers. This paper argues that there is good reason for this lack of attention, including strong competition in the retail provision of broadband Internet access, wide spread adoption of volumetric pricing by ISPs and a well established regulatory framework for dealing with discriminatory behaviour that is detrimental to consumers and competition.

This paper consists of six sections. Section 2 examines the origins and history of the net neutrality debate. In doing so, it summarises arguments both for and against net neutrality regulation. Section 3 provides a number of alternative definitions of what is meant by the term 'net neutrality'. Section 4 looks at the economics of net neutrality and identifies those issues that are at the core of the net neutrality debate – discrimination and market power. Section 5 examines the relevance of the net neutrality debate to both Australia and New Zealand. Finally, Section 6 draws some conclusions.

2 The net neutrality debate so far

The net neutrality debate has its origins in the United States and has become an important issue in telecommunications regulation. It was triggered in 2002 when the Federal Communications Commission (FCC) ruled that provision of cable modem services (i.e. cable Internet services) is an interstate information service and therefore exempt from the telecommunications common carrier requirements. This ruling was upheld by the U.S Supreme Court in a June 2005 decision (*National Cable & Telecommunications Association v Brand X Internet Services*).

The debate gained further momentum in August 2005 following an FCC ruling to extend the same regulatory relief to wireline Internet broadband services (i.e. DSL Internet services). Concurrently, the FCC issued a 'Policy Statement,' declaring that consumers of Internet services should enjoy four 'entitlements':

1. Access to lawful content of their choice;
2. Ability to run chosen applications and services;
3. Ability to connect their choice of legal devices that do not harm the network; and
4. Competition among network, application and content providers.

The FCC's Policy Statement expressly stated that the Commission was not adopting rules and that the above 'entitlements' are subject to reasonable network management practices.

Subsequently the FCC has entertained complaints regarding alleged violations of its policy and has since issued public notices and held public hearings specifically seeking information relating to broadband network management practices. Meanwhile the debate continues, not only within the industry, but also in the US Congress (Cave & Crocioni, 2007: 671).

Proponents of net neutrality allege that ISPs and network operators have incentives to discriminate against competing or unaffiliated content and services to the detriment of competition in downstream content and applications markets. According to (Frieden 2006),

Network neutrality advocates worry that major ISPs have both the wherewithal and incentive to bifurcate the Internet into one medium increasingly prone to congestion and declining reliability and one offering superior performance and potential competitive advantages to users able and

willing to pay, or affiliated with an ISP operating a major bitstream transmission network.

Supporters of net neutrality further argue that failure to mandate some form of net neutrality would mean that the Internet would cease to be free and open and that in the absence of net neutrality, innovation by content providers may be stifled in turn preventing the emergence of new highly-valued content. For example, it is often argued that the success of the World Wide Web, Google, Skype and Yahoo etc has been made possible by a decentralised Internet based on net neutrality and that any departure from net neutrality will stifle future innovation (Economides 2007, 241).

Opponents of net neutrality argue that any imposition which reduces the ability of ISPs to manage their networks and develop their product offerings (including pricing) would be inefficient and undermine their ability to defray the high investment costs of upgrading and expanding consumer broadband networks (Schwartz & Weiser, 2009). Opponents also argue that a one-size fits all approach will restrict the Internet to only carrying limited types of content and applications which will in turn limit innovation (Ralph, 2007).

In Australia and New Zealand, the net neutrality debate has not received significant attention from either consumers or industry. In Australia, the net neutrality debate is widely considered to be a commercial issue for American ISPs resulting from the fact that unlimited broadband Internet usage plans have failed to generate additional revenue in line with traffic growth and demand for additional broadband capacity (Winterford & Hill, 2008). In New Zealand, while many appear to be watching the net neutrality debates in the United States and Europe, there has been relatively little debate on whether New Zealand needs net neutrality regulation.

3 What is net neutrality?

As noted by (Cave & Crocioni 2007, 670), the concept of net neutrality is difficult to define because not only is it not clearly and unanimously articulated, but it is often linked to vague concepts of fairness and civil liberty much more than economics. Advocacy group, (Save the Internet 2009), contends that:

Net neutrality ... is the guiding principle that preserves the free and open Internet. Put simply, net neutrality means no discrimination. Net neutrality prevents Internet providers from blocking, speeding up or slowing down Web content based on its source, ownership or destination. Net neutrality is the

reason why the Internet has driven economic innovation, democratic participation, and free speech online. It protects the consumer's right to use any equipment, content, application or service on a non-discriminatory basis without interference from the network provider. With net neutrality, the network's only job is to move data – not choose which data to privilege with higher quality service.

A less emotive definition, provided by (Baumol et al. 2007, 1), describes net neutrality as a policy proposal that would, among other things, regulate how network providers manage and price the use of the network.

An alternative way of understanding the concept of net neutrality is to view it as a number of propositions rather than a single concept (Sidak 2006, 351). First, proponents of net neutrality argue that ISPs should be prevented from charging more for priority delivery. Second, ISPs should not be allowed to deny access to specific websites or Internet applications by final users. Third, and largely a corollary to the above, ISPs should not be allowed to integrate backwards into the production of content or applications.

The common concern underlying all of these propositions is the ability of ISPs to discriminate among content and applications. The first proposition reflects a concern about discrimination based on quality of service, whereby ISPs could designate ‘fast lanes’ and charge content providers or end-users for use of these lanes. Additionally, ISPs could use local ‘on-ramps’ to ensure that affiliated content gets to the customer quicker and at better quality than unaffiliated content (Ralph 2007). It is argued that these practices could harm innovation in the development and competition for the provision of content and applications. The second proposition reflects a concern that ISPs could use port blocking or other technological means to unilaterally block or discriminate against content or applications that compete with ISP services (Ralph 2007). For example, an integrated ISP that offers standard voice telephony or Pay TV services in addition to broadband may choose to block Voice over IP (VoIP) traffic or video content from unaffiliated sources. The third proposition reflects a concern that ISPs will face increasingly strong incentives to invest in the development and production of content which will threaten the ‘free and open’, decentralised and democratic nature of the Internet.

4 The economics of net neutrality

If net neutrality is about discriminatory behaviour by ISPs and network operators in favour of the provision of affiliated content and/or applications then it is only a new tag-line for a very old issue (Speta 2009). It is well understood by policy makers and competition regulators that when firms with market power discriminate against downstream rivals there may be concerns about anti-competitive effect and/or purpose. This could be aimed at either favouring the network operator's downstream activities or to fend off rivals who may threaten to integrate backwards (Ralph 2007). The history of this issue as it relates to broadband and telecommunications is summarised by (Speta 2009):

At the dawn of the broadband era, the issue was framed as whether independent ISPs would have 'open access' to sell the highspeed Internet services offered by cable companies. Earlier, as competition developed in long-distance telephony, long-distance carriers began to design customized offerings for their big-business customers. When challenged as discriminatory, the FCC ordered the tariffs open to all comers, which meant that carriers built in artificial terms to make them unpalatable (to customers other than their intended beneficiary).

Concerns about market power and discrimination, in either telecommunications or any other market, does not necessarily require a blanket prohibition. Instead any justified regulatory or policy response should first satisfy two necessary preconditions. First, the existence of substantial market power in the provision of an access service needs to be confirmed. Second, any practice of discrimination needs to have adverse consequences for competition and consumer welfare.

Both price and non-price discrimination can be welfare enhancing. By charging different prices for the same product in different segments of the market (i.e. third degree price discrimination) a downstream monopolist can extract a greater surplus and expand output (Schmalensee 1981; Varian 1985). Furthermore, as noted by (Sidak 2006), in markets that exhibit economies of scale, it is competition that often leads to differential pricing which in turn leads to expanded output:

Differential pricing is commonplace in competitive markets..., because competition compels firms to adopt rival strategies to lower, to the maximum extent possible, the prices that they charge price sensitive customers.... In particular if a firm faces fixed costs and trivial marginal costs, if customers

differ in demand patterns and if entry and exit are relatively inexpensive, then it is straightforward to show that the firm must adopt prices that are discriminatory and exceed marginal cost to survive financially.

By contrast, imposing an absolute ban on price and non-price discrimination in competitive industries that exhibit economies of scale will likely lead to lower output given that some smaller markets and price sensitive customers will no longer be served. This in turn will reduce economic welfare.

4.1 Banning traffic prioritisation and charging for prioritisation

Net neutrality advocates often claim that the Internet was designed to assign equal treatment and rights of delivery to each packet (Save the Internet 2009). While there may be some truth in this statement it should be viewed in the context of the following:

- Excess capacity was a feature of communication networks at the beginning of the proliferation of Internet use. Hence there was no need to prioritise traffic or engage in network management to ensure the efficient use of network capacity. This is not dissimilar to a newly built uncongested road.
- Earlier Internet applications were not delay sensitive. This is reflected by the best-efforts nature of most ISPs product offerings.

Much has changed since then. ISPs have come to realise that network capacity is finite and that increasing bandwidth-intensive content applications will require ongoing investment in additional bandwidth and network capacity. There has also been a realisation that sophisticated online content and applications are not all the same. Some content, such as email and text based web pages, may not be delay sensitive, which contrasts with applications such as IP television (IPTV) and VoIP that have a low tolerance of delay and jitter.

The ability to discriminate on the basis of quality of service is an efficient means of managing demand when it exceeds the network's capacity – i.e. network congestion. When congestion occurs, all traffic is delayed irrespective of its value. As this is an economically inefficient outcome, charging more for priority traffic and allowing higher valued content to receive a greater quality of service will increase efficiency. Such an outcome is not dissimilar to a congested road where buses are given priority over cars during peak times or where drivers can pay a toll for the use of an uncongested express lane.

In the absence of network congestion, price discrimination based on differences in the customer's willingness to pay may also lead to greater overall efficiency. In particular, the recovery of fixed and common costs from those services which are relatively inelastic is Ramsey efficient. Indeed, Ramsey efficient pricing has been widely used by telecommunications operators to efficiently recover fixed and common costs associated with PSTN networks. Such pricing, while undesirable to advocates of net neutrality, may not necessarily be anticompetitive or harmful to consumer welfare.

4.2 Blocking access to content, websites or applications

The second plank of the net neutrality argument is that ISPs and network operators should not deny access by end users to specific content, websites or Internet applications. Indeed, it is easy to think about how such behaviour can have an anticompetitive effect in the markets for Internet content and applications. While this behaviour is possible, its probability will be tempered by competition in, and contestability of, the market for the provision of retail Internet access.

The blocking of unaffiliated content or applications is most likely to occur where the network operator or ISP has significant market power in the provision of Internet access and has vertically integrated into content and applications. Such a firm could maximise profit and reduce output by blocking unaffiliated content. However where an integrated network operator or ISP faces competition in the market for retail Internet access, the practice of blocking unaffiliated content may result in a loss of 'access customers' as well as 'content customers'. Similarly, where there may be little competition in the provision of Internet access but the barriers to entry are low, the blocking of unaffiliated content may result in the entry of a new competitor seeking to compete on the basis that it offers access to all content.

5 The relevance of net neutrality to Australia and New Zealand

5.1 The competitive landscape

Competition exists for the retail provision of broadband Internet services in both Australia and New Zealand. In Australia, there are more than 638 ISPs in operation and almost all areas are served by at least two competing ISPs. (ACMA 2009) In New Zealand, there are around 50 ISPs in operation and most consumers, regardless of their geographic location, have the choice of two or more ISPs (Point Topic 2010).

Also, in both countries, the market for telecommunications exhibit low barriers to entry and expansion. New entrants in both countries have available to them a range of entry options including:

- To resell the incumbent's, or another network provider's, wholesale services (i.e. resale competition). In Australia several network operators (including Telstra, Optus and PowerTel) offer wholesale bitstream services. In New Zealand, access to Telecom New Zealand's Unbundled Bitstream Service is available to access seekers at regulated price terms and conditions.
- Partial facilities based competition. In both Australia and New Zealand access to the local loop is available at regulated price terms and conditions. Additionally, in Australia access seekers have available a Line Sharing Service (LSS) which is also regulated.
- Full facilities based competition by investing in the provision of competitive network infrastructure such as next generation wireless networks, Fibre to the Home or Curb (FTTH or FTTC) infrastructure.

Perhaps the strongest evidence of these low barriers to entry is the significant market participation that has taken place over the last few years. In Australia, the number of unbundled lines as a proportion of total active broadband services has grown from around one percent in June 2004 to around 11.5 percent in June 2007 (JP Morgan 2007, 14). In New Zealand, since the launch of the Unbundled Copper Local Loop (UCLL) service in early 2008 there has been strong take-up of the service. According to the (Commerce Commission 2009) the number of unbundled lines grew by more than 80 per cent over the period June 2008 to June 2009ⁱ. This growth in unbundled lines is in addition to competition from resellers and infrastructure based competitors that provide retail broadband services via competitive networks including 3G/HSDPA mobile and HFC networks, and represents real market entry and expansion by competitors.

As discussed previously, competition in the retail provision of Internet access coupled with low barriers to entry and expansion dampens the incentives for network operators and ISPs to block access to content, web pages or applications. Such behaviour by any one ISP will reduce the attractiveness of its service offering, putting it at a competitive disadvantage.

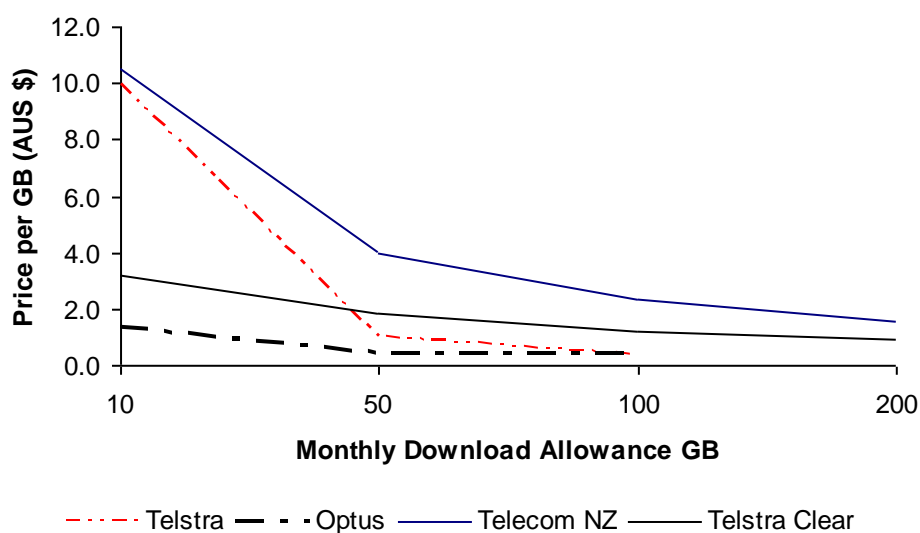
5.2 Business Models and pricing structures

The Australian and New Zealand markets for Internet access are characterised by the widespread use of volumetric charging by ISPsⁱⁱ. Volumetric pricing refers to a pricing structure whereby the end-user pays the access provider for access to the Internet at a certain speed and a pre-determined maximum download usage allowance. Once a consumer reaches the monthly usage allowance, the service provider either slows the speed of the service to dial-up speeds or it charges the end-user additional usage charges – normally on a per megabyte (MB) basis.

Some net neutrality advocates argue that volumetric pricing restricts consumer access to content on the public Internet. For example, (Marsden 2007, 412-413) argues that where an ISP undertakes traffic shaping, they have strong incentives to block or 'throttle' the transmission of low value content such as either unaffiliated content or user generated content.

Australia's experience of volumetric pricing clearly shows that the concerns of net neutrality advocates are overstated. Indeed volumetric pricing has several advantages which, taken together, dampen the incentives that ISPs and network operators face to discriminate against or block traffic based on its source or type. First, the imposition of monthly download quotas and additional per megabyte usage charges allows ISPs to more effectively set user prices to marginal costs. As detailed in Table 1, effective per megabyte charges decrease as monthly usage increases. This is both efficient and consistent with the declining marginal cost structures of high fixed costs networks.

Table 1: Residential Internet Plans – selected ISPs in Australia and New Zealand



Note: All prices were obtained from the relevant ISP websites as at 21 July 2010 and converted into Australian Dollar prices using an average exchange rate over the period 1 January 2010 to 20 July 2010.

Second, as demand for Internet traffic grows, volumetric pricing allows ISPs' revenues to grow, which in turn provides network operators incentives to invest in additional network capacity and capabilities. By contrast, truly unlimited plans, such as those commonly offered by US ISPs, provide little incentive for ISPs to invest in network upgrades and capacity. Third, volumetric pricing provides strong incentives for ISPs to maximise the transmission of all network traffic, regardless of its source or type, because this will allow ISPs to earn additional revenues and maximise profits. This is clearly the case where an ISP imposes additional download charges on the end user once they have reached their monthly download quota. However, if an ISP undertakes traffic shaping or throttling of customers' traffic, that ISP has an incentive to structure its menu of access plans in such a way that its customers will choose a higher priced monthly plan which provides excess download capacity. Such pricing structures maximise an ISP's revenues from fixed monthly charges as opposed to variable usage charges. Finally, volumetric pricing is a transparent network management practice whereby the ISP is agnostic about what type of traffic is shaped. Instead congestion is managed on the basis of the customer's willingness to pay.

5.3 Regulation

Both Australia and New Zealand have telecommunications specific regulation which operates in addition to their general trade practices regulation. In both countries, regulatory instruments include ex-ante access regulation and conduct regulation designed to prevent anti-competitive behaviour. Accordingly, both Australian and New Zealand regulators have several options to deal with the sort of discriminatory behaviour that concerns net neutrality advocates.

5.3.1 Access Regulation

Australia

In addition to the generic access provisions set out in Part IIIA of the Trade Practices Act 1973 (TPA), Australia's telecommunications industry is also subject to an industry specific access regime established by Part XIC of the TPA. Under Part XIC

the regulator – the Australian Competition and Consumer Commission (ACCC) – may declare services and conduct arbitrations relating to access (Miller 2009, p.706). Once a service is declared by the ACCC, the access providers of that service, if requested to do so by an access seeker, must supply that service on non-discriminatory terms and conditions in accordance with the standard access obligations (SAOs). Both price and non-price terms and conditions are covered by the SAOs. Additionally, the SAOs require that an access provider take all reasonable steps to ensure that the technical and operational quality of the service and ancillary services (fault detection, handling and rectification, and the timing of those services) is equivalent to that which it provides to itself.

Part XIC negates the need for a specific net neutrality rule in Australia. In practice, if the ACCC were to form the view that:

- Discriminatory treatment of Internet traffic by an ISP or network owner (either price or non-price behaviour) was undesirable; and
- That declaration of the relevant carriage service would be in the long-term interest of end users (LTIE),

the ACCC could declare the service, which would obligate the access providers to provide that service to access seekers on non-discriminatory price and non-price terms and conditions.

New Zealand

The primary legislative instrument for the regulation of New Zealand's telecommunications industry is the Telecommunications Act 2001 (Telecommunications Act). Part 2 and Schedules 1 to 3 of the Telecommunications Act establish an access regime for designated and specified services. It also confers on the Commerce Commission the responsibility of conducting investigations and making recommendations to the Minister of Communications in relation to the desirability of regulating additional services or amending or omitting the regulation of those services that are currently designated or specified (Webb & Ginn 2001).

Under Schedule 1 of the Telecommunications Act the following standard access principles apply to designated and specified access servicesⁱⁱⁱ:

- Principle 1: the access provider must provide the service to the access seeker in a timely manner;

- Principle 2: the service must be supplied to a standard that is consistent with international best practice;
- Principle 3: the access provider must provide the service on terms and conditions (excluding price) that are consistent with those terms and conditions on which the access provider provides the service to itself; and
- Principle 4: the access provider must, if requested, provide an access seeker with information about a designated access service or specified service at the same level of detail, and within the same time frame, that the access provider would provide that information had it been requested by one of its own business units (Webb & Ginn 2010).

The access regime established by the Telecommunications Act negates the need for specific net neutrality regulation in New Zealand. If the Commerce Commission were to form the view that discriminatory treatment of Internet traffic was against “the long-term benefit of end-users of telecommunications services within New Zealand”, then it could designate or specify the service, which would obligate the access provider to supply that service to access seekers on non-discriminatory terms and conditions.

5.3.2 Conduct Regulation

Australia

In addition to the access regime established by part XIC of the TPA, the Australian regulator has two anti-competitive conduct provisions that it could potentially rely on to prevent or remedy undesirable discriminatory treatment of Internet traffic by an ISP or network owner. Specifically, the ACCC could choose to invoke its powers under either the general (section 46) or the telecommunications-specific anti-competitive conduct provisions (Part XIB) of the TPA.

Part XIB of the TPA establishes a competition test that deters carriers with a substantial degree of market power in a telecommunications market from misusing that power with the effect of substantially lessening competition. This is equivalent to the effects-based anti-trust legislation long-established and used in the United States.

Part XIB applies in addition to section 46 of the Act. Both are judicial enforcement models that prescribe general rules of conduct which are enforceable by the courts. There are however a number of important differences between Part XIB and s46 of the Act:

- Part XIB applies specifically to telecommunications while section 46 applies generally to all markets;
- Part XIB makes use of an effect or likely effect test, whereas section 46 uses a purpose test;
- Part XIB, but not section 46, allows the ACCC to issue competition notices to firms it alleges are engaged in anti-competitive conduct. A 'Part B competition notice' has the effect of reversing the onus of proof; and
- The pecuniary penalty in Part XIB (\$10 million plus \$1 million per day) is potentially much greater than in section 46 (\$10 million).

It should be noted Part XIB and section 46 are ex-post regulatory instruments. Hence, for the ACCC to initiate a Part XIB or s46 action the offending behaviour would have needed to occur. This contrasts with Part XIC of the Act, which allows the ACCC to address the conduct before it has occurred.

New Zealand

Like section 46 of the Australian TPA, section 36 of the Commerce Act establishes a competition test that deters firms from taking advantage of a substantial degree of power in a market for certain anti-competitive purposes (Dean & Weston 2001). Consequently, if the Commerce Commission formed the view that the discriminatory treatment of Internet traffic, by an ISP, or network operator, with a substantial degree of power in a market, was

- Restricting the entry of a person into that or any other market; or
- Preventing or deterring a person from engaging in competitive conduct in that or any other market; or
- Eliminating a person from that or any other market,

then it could rely on section 36 of the Commerce Act to either remedy or prevent ongoing discriminatory practices.

6 Conclusions

The competitive provision of retail Internet access, the widespread adoption of volumetric pricing and the existence of comprehensive regulatory frameworks for dealing with anti-competitive behaviour gives good grounds for the belief that there is little justification for specific net neutrality regulation in either Australia or New Zealand. Strong competition coupled with low barriers to entry dampens the

incentives for network operators and ISPs to block access to content, webpages or applications. Volumetric pricing provides strong incentives for ISPs to maximise the transmission of all network traffic regardless of source or type. It is also a transparent network management practice whereby congestion is managed on the basis of the customer's willingness to pay. Finally, the existing regulatory frameworks that apply to telecommunications markets in Australia and New Zealand are well placed to deal with any competition concerns that may arise from discriminatory network management practices on behalf of ISPs and network operators.

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ⁱ According to the Commerce Commission the growth of unbundled lines in New Zealand after 18 months appears to better than international experience. The Commerce Commission argue that the take-up for unbundled lines in New Zealand is better than the take-up experienced in Germany, the UK or Australia.

ⁱⁱ Note that volumetric pricing is not a feature of all ISPs retail pricing plans in either Australia or New Zealand.

ⁱⁱⁱ Importantly the application of these four principles are limited by:

- Reasonable technical and operational practicability having regard to the access provider's network;
- Network security and safety;
- Existing legal duties on the access provider to provide a defined level of service to users of the service;
- The inability, or likely inability, of the access seeker to comply with any reasonable conditions on which the service is supplied; and
- Any request for a lesser standard of service from an access seeker.